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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,816	04/16/2004	Ho-In Kim	5000-1-574	8684
33942	7590	06/06/2006	EXAMINER	
CHA & REITER, LLC			TRAN, CHUC	
210 ROUTE 4 EAST STE 103			ART UNIT	PAPER NUMBER
PARAMUS, NJ 07652			2821	

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/825,816

Applicant(s)

KIM ET AL.

Examiner

Chuc D. Tran

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 11-12, 14-17 is/are rejected.
- 7) ☒ Claim(s) 5-10 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 11-12 and 14-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Lo (USP. 6,806,114).

Regarding claim 1, Lo disclose a gain-clamped semiconductor optical amplifier in Fig. 6 and 7 comprising:

- a gain waveguide (2) (see Fig. 6) for amplifying an optical signal input to the gain waveguide (Col. 4, Line 45); and
- a grating layer having a first grating (75) on a portion of the grating layer, the first grating being disposed at a first end portion (see Fig. 7), wherein the gain waveguide is disposed on the grating layer in a direct contact with the first grating (75) (see Fig. 7).

Regarding claim 2, Lo disclose that a second grating (76) disposed at a second end portion (see Fig. 7).

Regarding claim 3, Lo disclose that a clad laminated on the gain wave (see Fig. 4).

Regarding claim 4, Lo disclose that the first and second grating have reflection factors different from each other (Col. 4, Line 45) (See Fig. 5).

Regarding claims 11-12, Lo disclose that non-reflection layers (54) disposed on two portions of the semiconductor optical amplifier (Col. 5, Line 13) (See Fig. 5).

Regarding claim 14, Lo disclose a semiconductor optical amplifier in Fig. 6 and 7 comprising:

- a gain waveguide (2) arranged to amplify an optical signal input to the gain waveguide (Col. 4, Line 13 and 45) (See Fig. 6), the optical signal being input and an amplified optical signal being output through a first end surface of the semiconductor optical amplifier (Col. 4, Line 45); and

- a grating layer having a grating on a portion of the grating layer (See Fig. 6), wherein the gain waveguide (2) is disposed on the grating layer in a direct contact with the grating (See Fig. 6).

Regarding claim 15, Lo disclose that the grating layer has another grating on another portion of the grating layer (See Fig. 7).

Regarding claim 16, Lo disclose that the grating and the another grating have reflection factors different from each other (Col. 6, Line 4-8) (See Fig. 7).

Regarding claim 17, Lo disclose that the gain waveguide includes at least one mode conversion region (75) (See Fig. 7).

*Allowable Subject Matter*

5. Claims 5-10 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Prior art fails to disclose or fairly suggest: (1) the gain wave guide includes a mode conversion region formed at one end portion of the gain waveguide, the mode conversion region having a width which becomes narrower or wider as it goes to an end adjacent to the semiconductor optical amplifier in combination with the remaining claimed limitations as claimed in claim 5 (claims 6-7 are allowed since they are dependent on claim 5); (2) the gain wave guide includes a mode conversion region formed at both sides of the gain waveguide, the mode conversion region having a width which becomes narrower or wider as it goes to a corresponding end of the semiconductor optical amplifier in combination with the remaining claimed limitations as claimed in claim 8 (claims 9-10 are allowed since they are dependent on claim 8); (3) a high reflection layer disposed on a second end surface of the semiconductor optical amplifier in claim 13.

*Citation of relevant prior art*

Prior art Nishimura et al (USP. 5,239,410) disclose method and apparatus for light amplification.

Prior art Wu (USP. 6,751,013) disclose gain-clamped semiconductor optical amplifier.

Prior art Mizutani (USP. 5,946,336) disclose optical semiconductor apparatus.

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Prior art Sakata et al (USP. 5,140,149) disclose optical apparatus using wavelength selective photocoupler.

Prior art Oka et al (USP. 5,177,758) disclose semiconductor laser device.

Prior art Kim (USP. 7,010,009) disclose distributed bragg reflector laser and a methode of making same.

Prior art Nitta et al (USP. 6,252,895) disclose distributed feedback semiconductor laser.

Prior art Delprat et al (USP. 6,563,631) disclose tunable gain-clamped semiconductor optical amplifier.

### ***Inquiry***

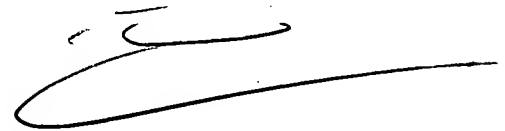
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuc D. Tran whose telephone number is (571) 272-1829. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P. Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC  
May 30, 2006



**THO PHAN**  
LEAD EXAMINER